## Technical Subcommittee B

of the

## Water Planning Council

Issue 7 - Recommended methods for measurement and estimations of natural flows in Connecticut waterways in order to determine standards for streamflows that will protect the ecology of the state's rivers and streams

Final Report

September 6, 2002

## **Technical Subcommittee B Members**

Bob Young

Name	Affiliation
Kenneth Skov, Co-Chair	Waterbury Bureau of Water
Kevin Case, Co-Chair	Farmington River Watershed Association
Hunter Brawley, Co-Chair	Pomperaug River Watershed Coalition
Peter Aarrestad	CT Dept. of Environmental Protection
Ralph Abele	U.S. Environmental Protection Agency
Jan Allart	Trout Unlimited
Linda Bireley	Fisheries Advisory Council
Virginia DeLima	U.S. Geological Survey
Peter Gallant	Aquarion Water Company of Connecticut
JohnHudak	South Central Regional Water Authority
Dr. Neil Fennessey	University of Mass. & Hydrologic Services, Inc.
Charlie Fredette	CT Dept. of Environmental Protection
Rick Jacobson	CT Dept. of Environmental Protection
Brandon Kulik	Kleinschmidt Associates
Carlene Kulisch	Regional Water
Jeff Lennox	Leggette, Brashears & Graham, Inc
Jim MacBroom	Milone & MacBroom
David Radka	CT Water Company
Robert Rivard	CT Dept. of Public Health
Brian Thompson	Aquarion Water Company of Connecticut
Dr. Glenn Warner	UCONN/CT Institute of Water Resources

Manchester Water & Sewer Division

## **Table of Contents**

Section	Page #
Subcommittee Consensus Approach Statement to Address Issue 7	1
I. Introduction	2
II. Background	4
III. Recommendation – Interim Method	5
IV. Long-Term Methods Evaluated Summary of Techniques Proposed Long-Term Approach for Connecticut	6 7
V. Application Issues Analysis of Costs and Benefits Groundwater Diversions Flow Reduction Triggers During Drought Development Impacts on Flow Water Quantity Goals Framework	9 11 11 13 13
IV. Management Recommendations	14
References	15
Glossary of Instream Flow Terminology	18
List of Tables and Figures	Page #
Table 1 – Watershed characteristics of "unregulated" Connecticut rivers with long term flow records (Apse 2000)	21
Table 2 – Monthly interim target flow alternatives for Connecticut rivers and streams in cubic feet per second per square mile (cfm)	22
Table 3 – Median monthly flows (cfm) and the corresponding exceedance probability as calculated by the FWS ABF method.	23
Table 4 – Flow statistics for "unregulated" Connecticut rivers with long term flow records.	24
Figure 1 – Geographic depiction of "unregulated" watersheds with long term flow records (Apse, 2000)	25

Appendices	Page #
Appendix A – Water Allocation Task Force Report 7/2/02 Draft, Ecological Needs Section	26
Appendix B – Summary of Interim Instream Flow Methods Reviewed	31
Appendix C – Excerpts from Presentation of Piotr Parasiewicz on the MesoHABSIM Approach	37
Appendix D – Water Supply Impacts Discussion	38
Appendix E – Estimating Natural Daily Streamflow at Ungaged Sites	44